

# Computers for the Complete Idiot



**Compuskills**  
The Fast Track to Computer Literacy

An Affiliate of Colorado Free University

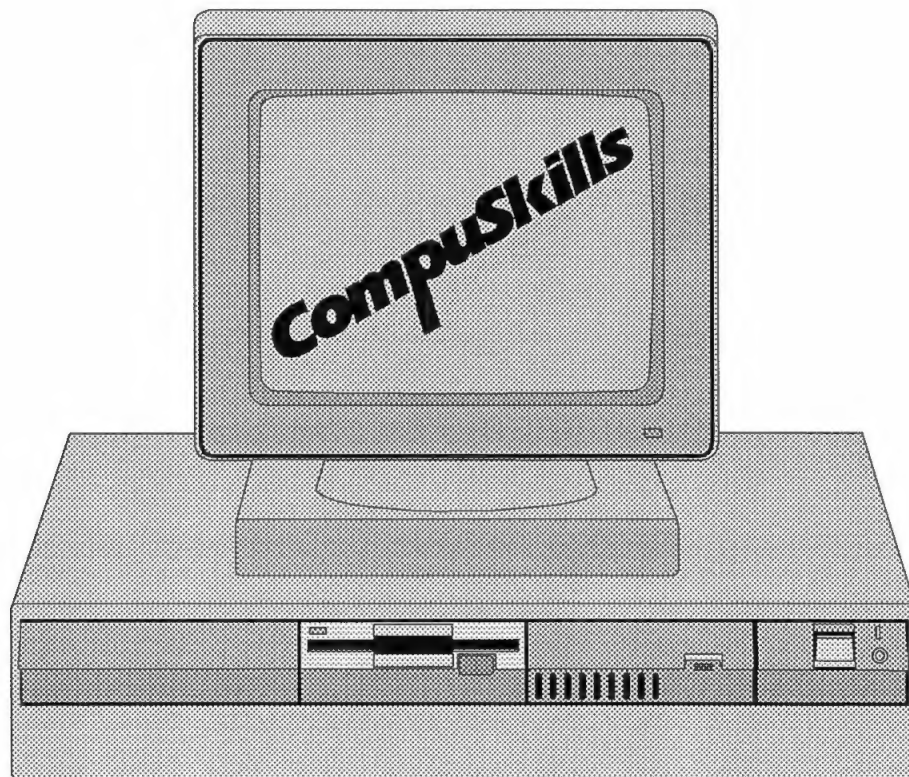
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**CompuSkills** provides computer training, consulting, and support services to organizations of all sizes. We offer both classroom and on-site training courses, and special one-on-one consulting and support services.

All **CompuSkills** classroom-based courses provide each student with his/her own computer and training materials. The training materials are for the students' use both during the course and as a reference guide after the course has been completed.

### **Disclaimer**

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# Computers for the Complete Idiot



What is a computer?

What can it do?

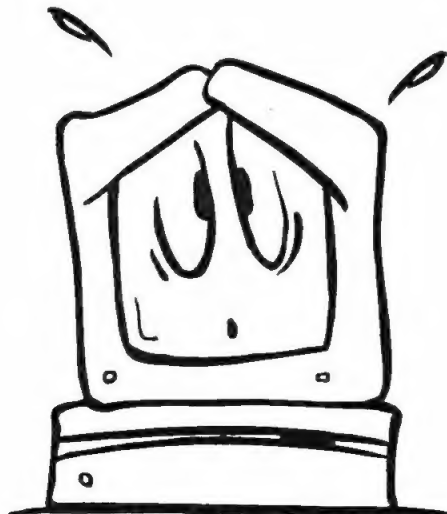
What are its parts?

**Don't let your computer get  
in the driver's seat**



**Learn what it is, how it works, and  
how you can master it.**

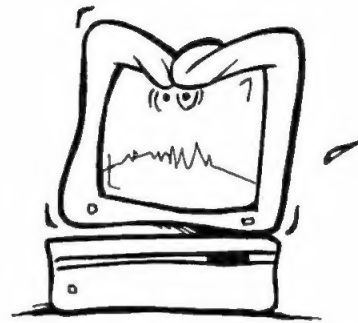
**Then it will be your faithful servant!**



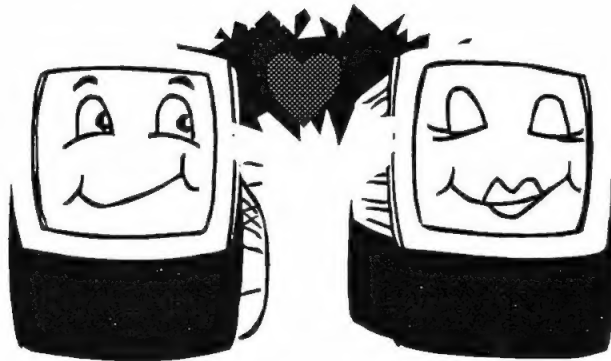


# Computers are just very fast calculators

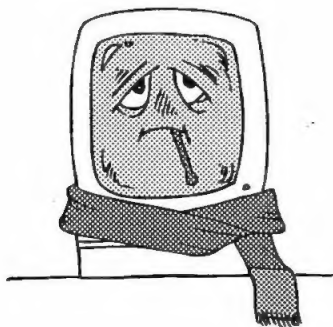
Computers can never get angry...



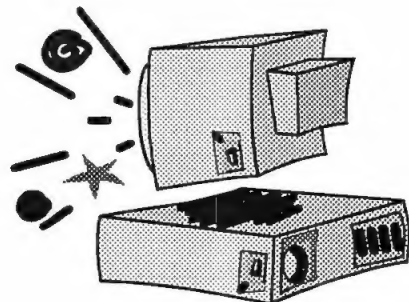
or affectionate...



or sick...



or argue back!



# What can a computer do?

## 1. Work with words...

Dear Mr. Smith,

Thank you for yor letter. I am plesed to

## 2. Work with numbers...

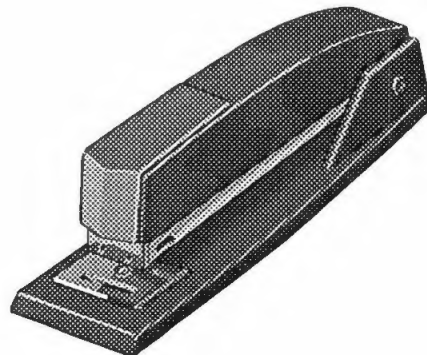
DATE: Invoice No. AMOUNT

1/18/93	1	\$260.00
1/18/93	2	\$520.00
1/27/93	3	\$536.25
2/2/93	4	<u>\$146.25</u>

## 3. Work with data...

Painted vase	Caspary Crafts	CR1154	12	2.85
String beads	Caspary Crafts	CR1231	32	11.25
Bead curtain	Genaset	FR1234	6	28.99
Floor mat	Selva Rugs	FR1143	0	8.95
Rattan chair	Solus	FR1233	0	112.45
Tapestry	Dulcet	FR1243	9	68.95
Candle holder	Taunt	HW1253	11	14.67
Kitchen knife	Evertrue	HW1383	0	3.23
Punch bowl set	Taunt	HW1142	5	3.11
Wooden bowl	Taunt	HW1131	23	2.95

## 4. Work with graphics...





## HARDWARE/SOFTWARE

### HARDWARE

General term for physical devices.

**Computer** - A programmable machine which executes a predefined set of instructions, or program. In addition to the microprocessor, a computer consists of memory or RAM, mass storage such as a hard disk, input devices such as a keyboard and mouse, and output devices such as a monitor and printer. The computer will also have one or more floppy disk drives for input or output of data on floppy disks.

**CPU** - Central Processing Unit, or microprocessor. Consists of an arithmetic unit, a control unit, and possibly high-speed RAM. IBM-compatible computers take their name from the CPU model number, e.g. 386, 486.

**Keyboard** - Set of alphanumeric, punctuation, and special keys used to input commands and data to a computer. Most common are the AT Standard with 84 keys, and the AT Enhanced with 101 keys (also known as the 101 keyboard).

**Modem** - Modulator/Demodulator, a hardware device that allows a computer to transmit *digital* signals over an *analog* telephone line by converting the computer's digital pulses into analog signals at the transmitting end. A second modem at the receiving end converts that analog signal back to digital for input to another computer.

**Monitor** - The computer's display screen. Monitors can be monochrome or color, the latter able to show from 16 to over 1,000,000 colors. Screen size is typically 12 to 14 inches diagonally, although full-page monitors can be 16 inches in diagonal. The other major difference among monitors is resolution, that is, the density of picture elements or pixels. Resolution types are CGA, EGA, VGA, and Super VGA.

**Printer** - A device that prints text and images on paper. Types of printer include:

**Dot matrix**, which uses an array of pins to form characters, striking through inked ribbon. Slow and noisy.

**Daisy-wheel**, in which character shapes are arranged at the end of spokes around a hub. the wheel rotates and when the required character is at a hammer, the hammer strikes to create an impression through an inked ribbon. Limited to text and very noisy.

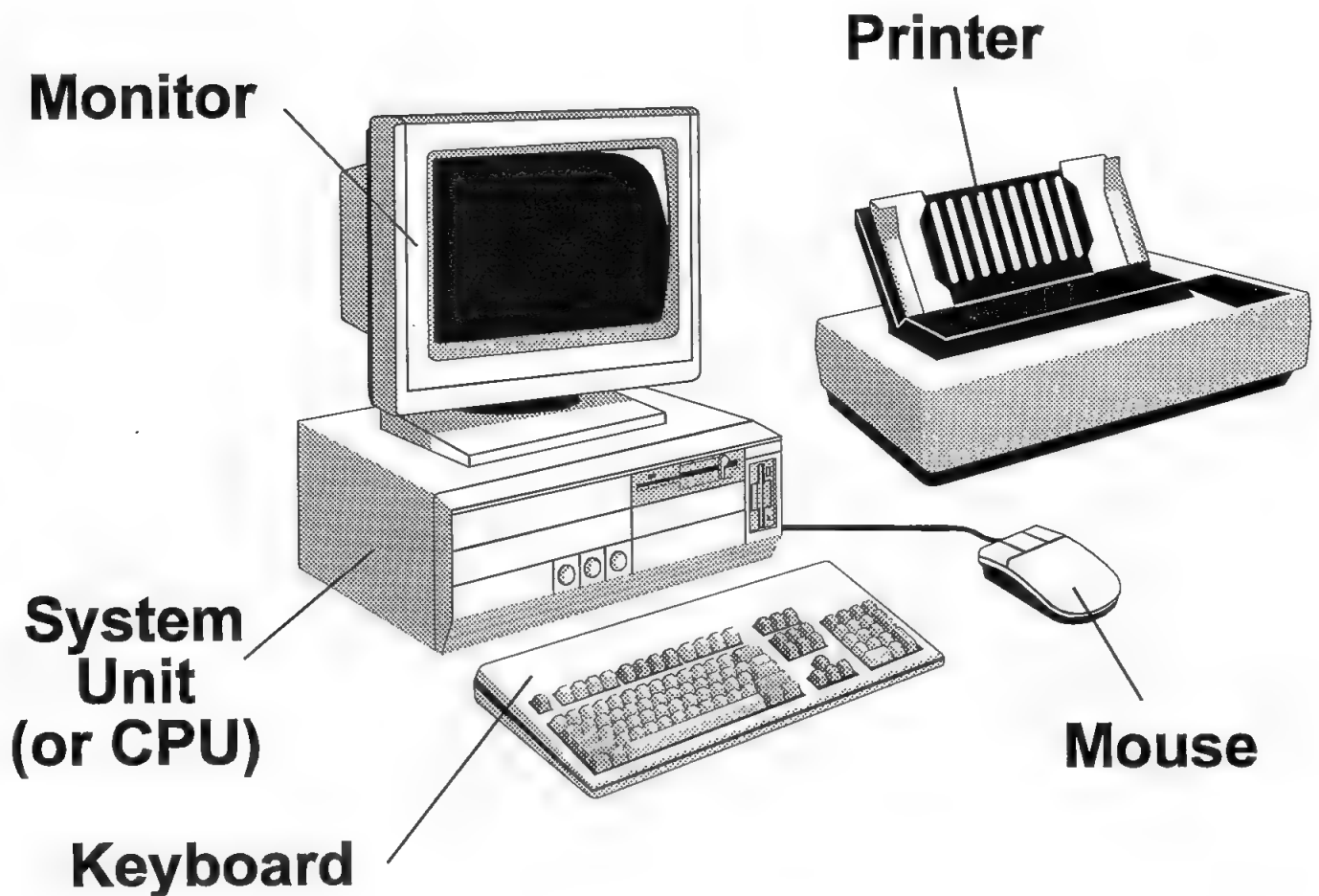
**Ink-jet**, which sprays ink through fine nozzles at the paper to form characters and images. Fast and quiet.

**Laser**, in which a laser beam "writes" on a sensitive drum which attracts ink powder. the powder is then deposited on the paper. Fast and quiet.

**Mouse** - A hand-held device whose movements across a flat surface govern the movement of a pointer on the monitor screen. A mouse is essential for menu-driven programs. When the pointer is over the desired option, clicking a button "selects" the option.

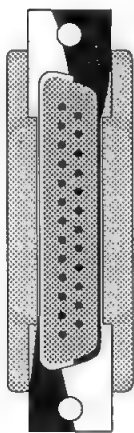
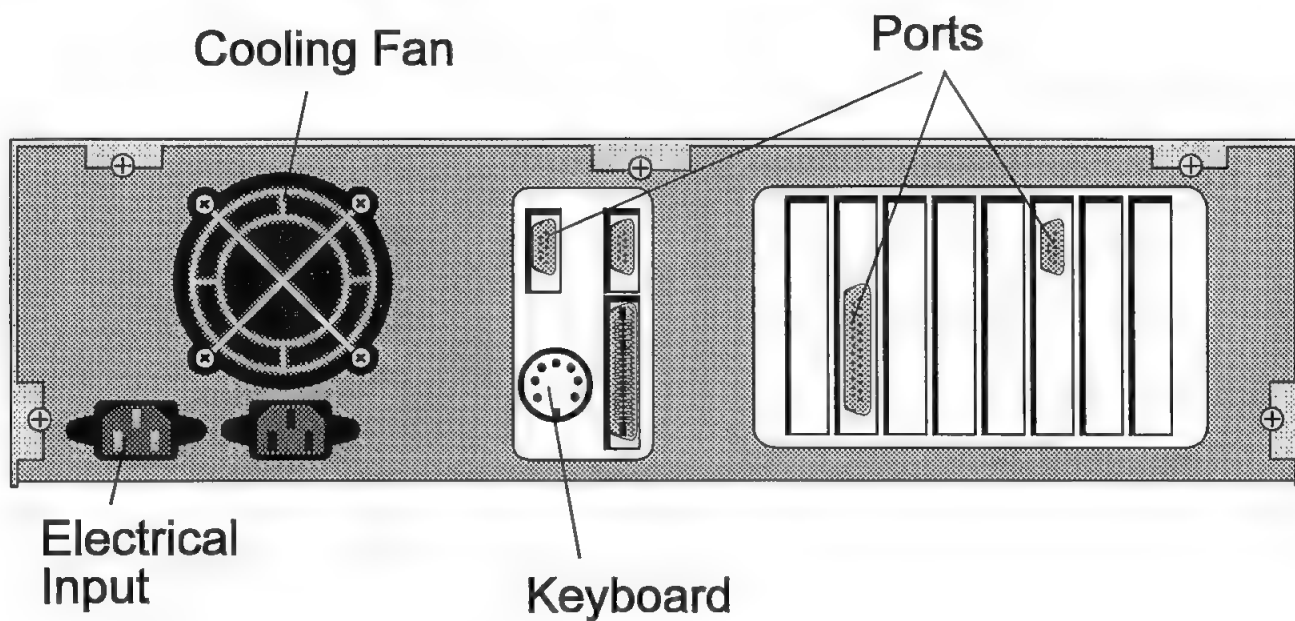
# The Parts of a Computer

**A computer is really several different parts, all wired together:**

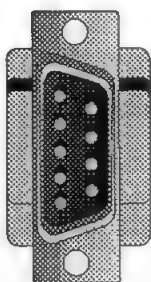




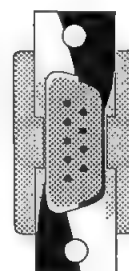
# Hooking a Computer Up



**Parallel Port - Printer**  
(Female 25 pins)

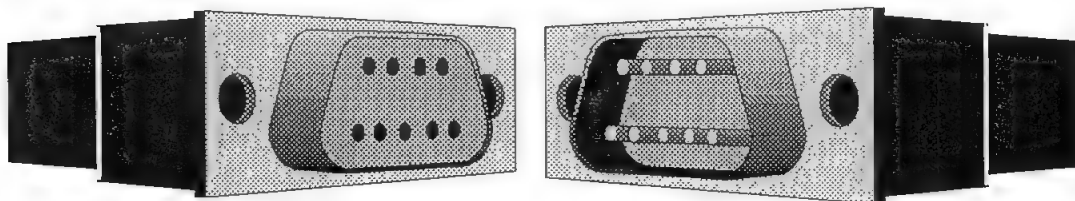


**Serial Port - Mouse**  
(Male 9 pins)

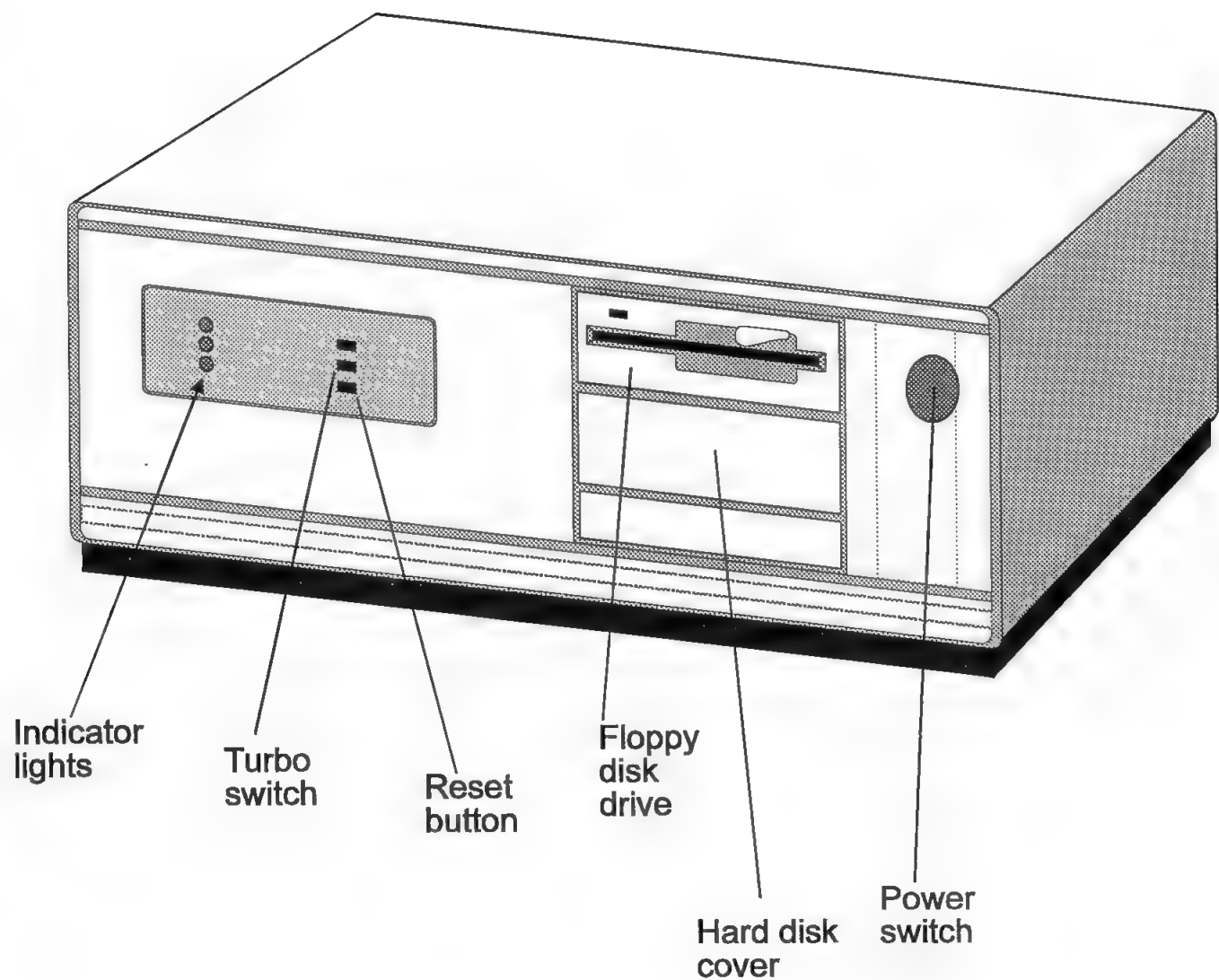


**Monitor Port**  
(Female 9 pin)

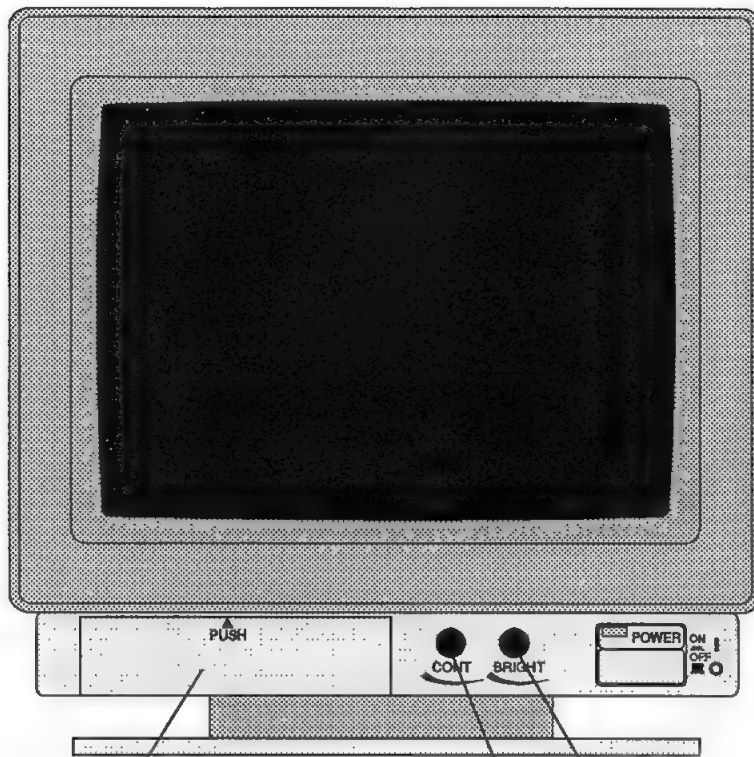
**Match Male and Female of the same size**



# System Unit Front Controls



# The Monitor



Other controls  
work with vertical and  
horizontal alignment,  
and picture size

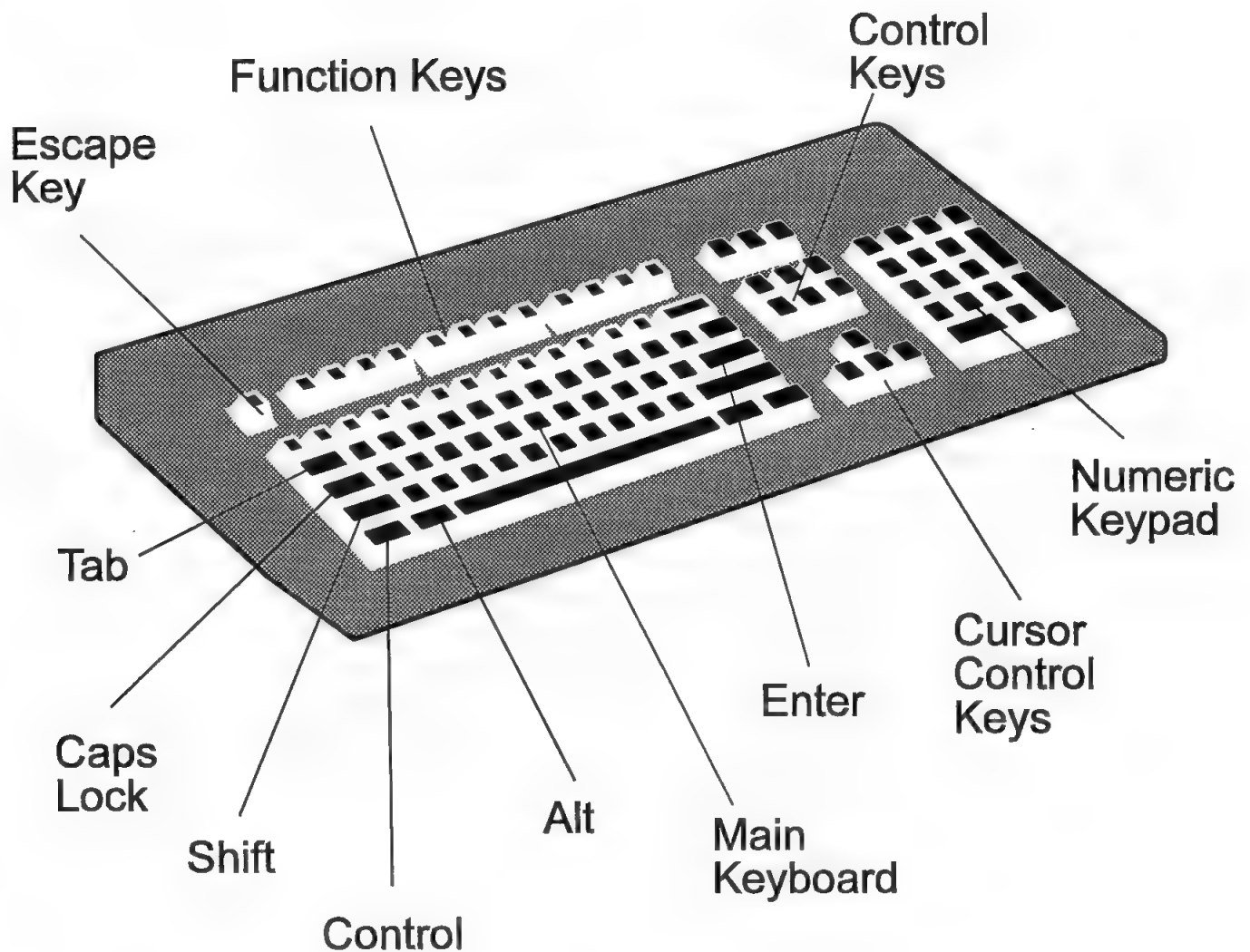
Brightness controls  
the intensity of the  
screen

Contrast controls  
the difference  
between black  
and white



# The Computer Keyboard

In addition to the main keyboard, a computer keyboard has many special keys to help us control how it works...



## BOOT

BOOT	The process of starting up a computer, involving a self-checking diagnostic and progressively loading the operating system. Can be a cold boot (from a no-power state), or a warm boot (reload operating system without the preliminary system self-check).
COLD BOOT	Starting a computer up from a no-power state. Differs from a warm boot.
WARM BOOT	<p>Resetting a computer that it already turned on. Used following a system crash or freeze which leaves memory in disarray. It clears memory but does not go through the initial diagnostic self-check. (Differs from a cold boot, in which the machine is brought up from no-power.</p> <p>You can make a warm boot either by pressing the "reset" button on your computer, or pressing the Control, Alt, and Delete keys simultaneously. You may have to do this if your system locks up or freezes.</p>

## APPLICATIONS VS OPERATING SYSTEM

**APPLICATIONS**      Programs intended for users, like word processing, graphics, data base, and spreadsheet programs. Application programs sit on top of the other major type of programs, **operating system programs**, that interact directly with the hardware.

### OPERATING SYSTEM

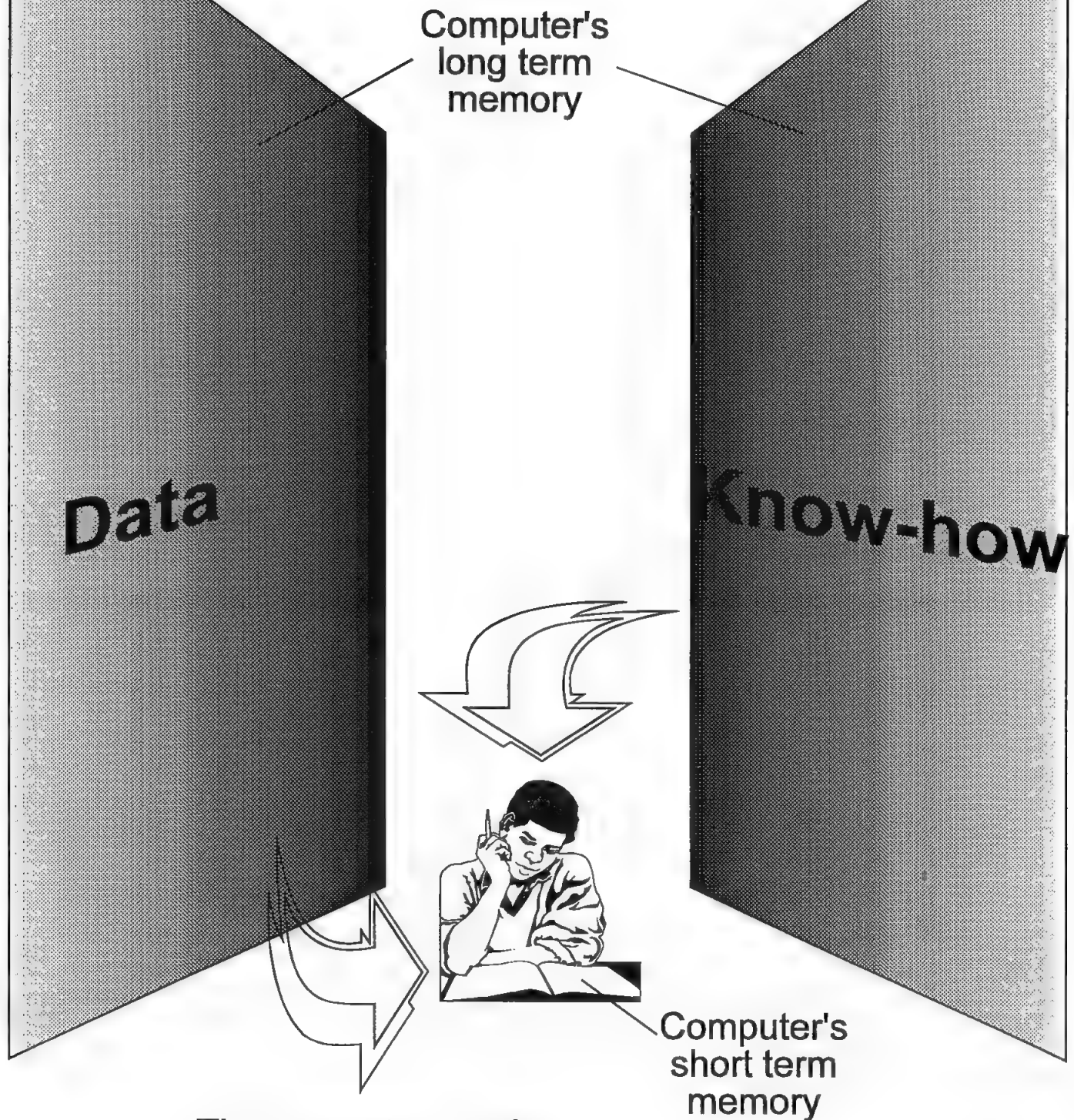
The program that, in effect, makes a computer's hardware into useable equipment. It performs basic internal tasks like managing disks and transferring data between disks and memory, reading input from the keyboard, and sending data to the monitor and printer. The major operating systems are:

- \* CP/M, the first personal computer operating system for IBM-compatibles;
- \* Microsoft's DOS, introduced in the early 80's which replaced CP/M;
- \* IBM's OS/2 for its top-of-the-line machines. Contains more advanced features than DOS, like true multi-tasking.
- \* Xenix, a PC version of the powerful UNIX operating system used for workstations.

**DOS**      Disk Operating System, the standard operating system for IBM-compatibles. "DOS" can be prefixed by MS-(Microsoft's version) or PC-(IBM's version). There have been about ten versions over the last decade, most notably DOS version 3.3 in 1987 that first supported 1.44 MB floppy disks, multiple hard disk partitions, and improved backup. Version 5.0 in 1991 offered an improved shell and managed memory (RAM) above 640 KB. Version 6.0 in 1993 offered a disk compaction utility called "DoubleSpace."



# Data and Know-how



The computer needs:

1. The Know-how to perform tasks (called software programs)
2. The data to perform them on

## MEMORY

### MEMORY

A computer's internal storage for fast access to programs and data. It can be random access memory (or RAM) which is where programs and data are held, or read-only memory (ROM) which is where the computer's most basic program is held. Data and programs are copied from the hard disk or floppy disks into memory so that access times are consistent with the speed at which the microprocessor works.

The memory available to the user is less than the total RAM because DOS itself requires a certain amount of memory. (You can tell how much memory is available by using the CHKDSK command.) The limit used to be 640 KB unless you used a special high-memory driver, but now DOS version 5.0 can handle up to 1 MB, and up to 8 MB is common under Windows.

### RAM

Random Access Memory, the computer's internal, temporary memory that allows fast, random access to data in any location. Data to be processed by the microprocessor must be brought from an external medium like a disk before being worked on.

### ROM

Read Only Memory, the computer memory that has been prerecorded, usually with basic operating system instructions to be executed during a boot. Unlike RAM, it retains its contents even when the power is turned off.

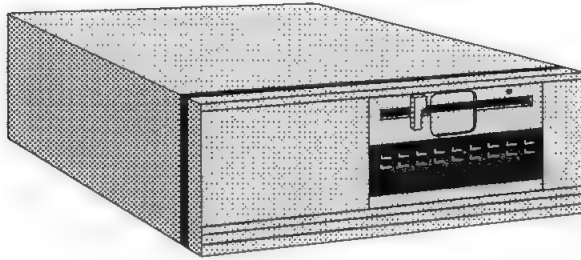
## DISKS

FORMAT	The process of preparing a disk to receive data that lays down the tracks that DOS will use. Hard disks require low-level formatting (done by the manufacturer) and high-level, or user formatting, often done by the dealer. When formatting a floppy disk, be very careful to include the drive letter in the command. If you just type FORMAT against the C:\ prompt, DOS will assume that you intend to reformat your hard disk, so make sure that you type FORMAT A: or FORMAT B:
DISK DRIVE	The device that rotates a disk and is equipped with heads to read and write data. Access times vary from about 500 ms for a floppy disk to 12 ms for a hard disk.
FLOPPY DISK	<p>A flexible magnetic-coated disk that is inserted into a disk drive that can write and read encoded information. The most common sizes are:</p> <ul style="list-style-type: none"><li>- 5 1/4 inch, with a capacity of 1.2 MB</li><li>- 3 1/2 inch, with a capacity of 1.44 MB</li></ul>
HARD DISK	A magnetic disk, installed within the computer, for storing data. Capacities vary from 10 MB to over 1,000 MB. Hard disks have extremely fast access, which can be further speeded by a disk cache that holds current data in RAM. Physically, the hard disk consists of a number of "platters," coated on each side, each with a read/write head. Each disk is formatted into tracks, with the vertical set of tracks termed a "cylinder."
TRACK	A circle on a magnetic disk along which data is written. Floppy disks typically have 40 or 80 tracks, and hard disks can have several hundred tracks. New disks are unformatted and must go through a formatting process to lay out the tracks. Until then, they are unusable.
SECTOR	A subdivision of a track on a disk. DOS typically creates 10 sectors per track. A sector that is unusable (because of irregularities in the magnetic coating) is termed a "bad sector."



# The Computer's Longterm Memory

Computers must be able to store data and programs (know-how) internally.



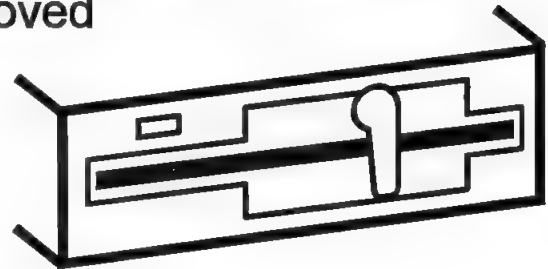
Data and programs are stored on two types of disk:

- Hard disk held permanently inside the computer
- Floppy disks that can be removed



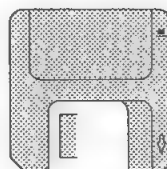
Hard disk

- \* non-removable
- \* holds hundreds of millions of characters

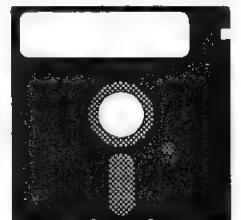


Floppy disk  
\* removable  
\* holds only one million characters

3.5" floppy disk



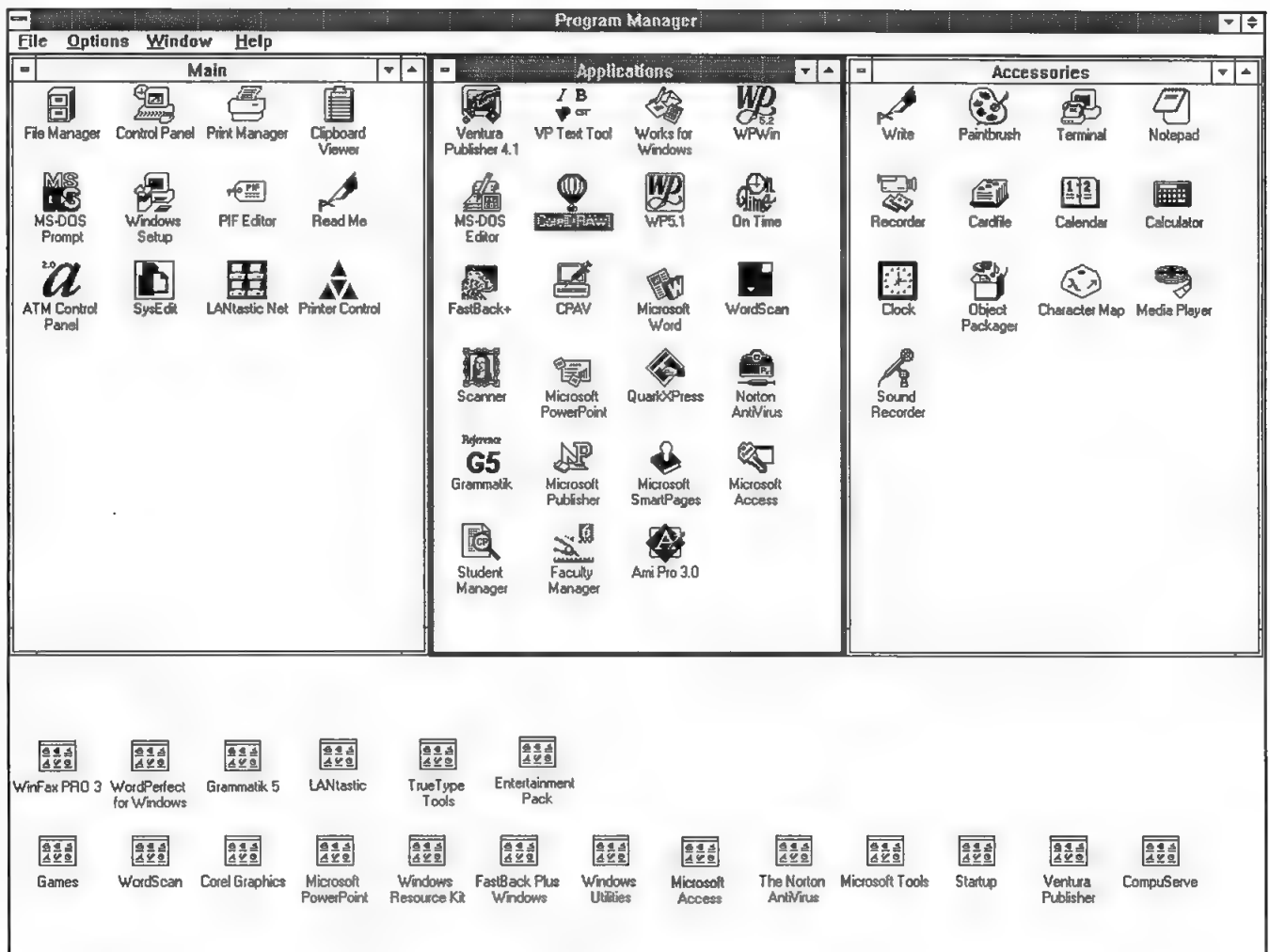
5.25" floppy disk



# Talking to DOS

```
C:\>copy myfile.wp c:\wp51\yourfile.wp
```

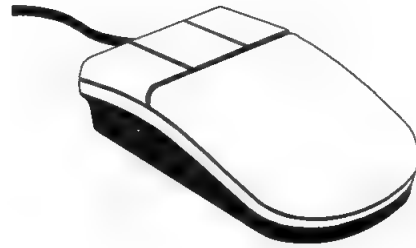
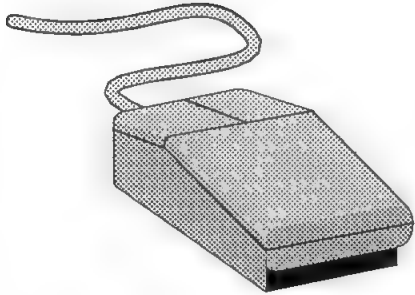
# Talking to Windows



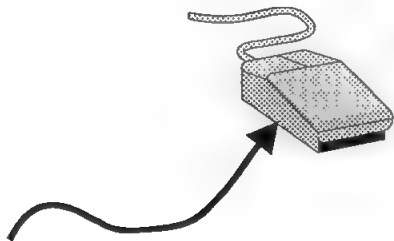
Use your mouse to point to the program you want to run, and click the left mouse button twice.

# The Mouse

We use a mouse to point to things on the screen and to tell the computer what we want it to do



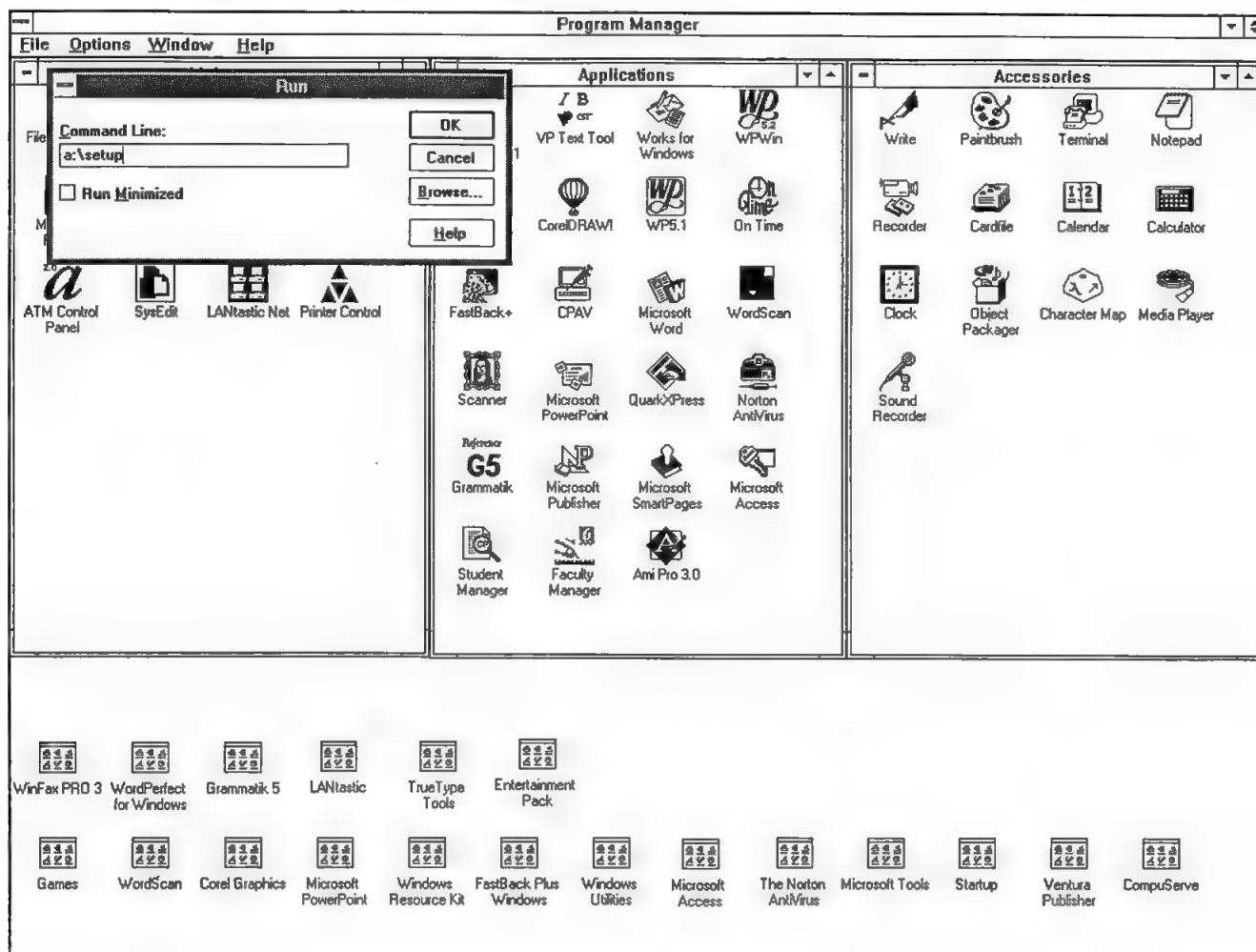
As we move the mouse, it controls a pointer on the screen.



Mice can have 2 or 3 buttons.  
Usually we only use the left mouse button.

One click **SELECTS** something on the screen  
Two clicks **ACTIVATES** our choice

# Installing a Program

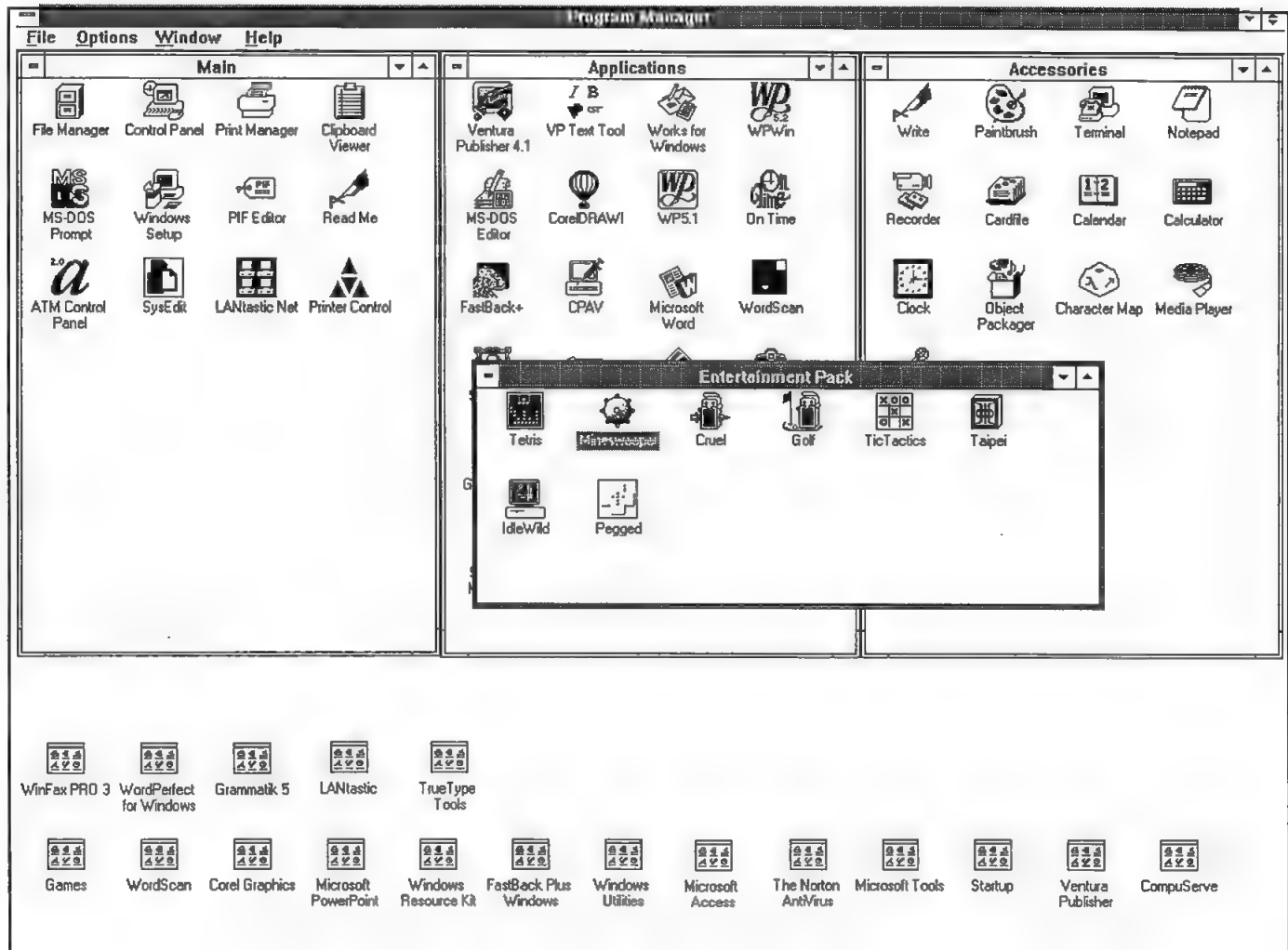


This tells Windows to run a program called "Setup" on the floppy disk in the "A" drive.

Windows copies the program from the floppy disk to the hard disk and makes a new icon to represent it

# Running a Program

Windows makes a group of icons, one for each program it installed.



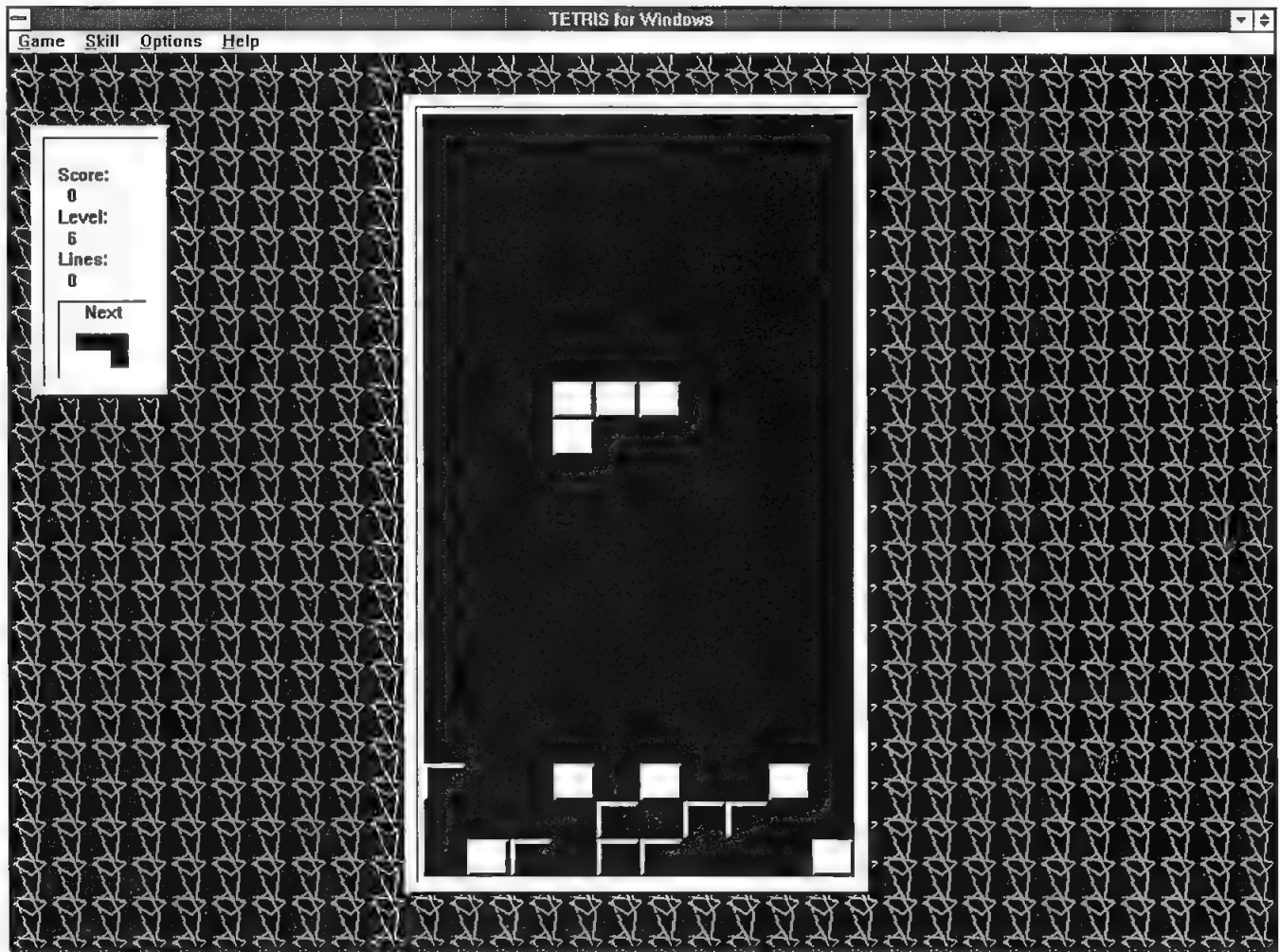
Click on the icon for Tetris to run the program.



# Playing Tetris

In Tetris, you must stack the falling shapes as tightly as possible. You can turn the shapes around as they are falling, but you must be quick.

Good luck!



# The Game of Tetris

## 1. Overview

Tetris is an exciting action game. Throughout the game, Tetris pieces fall from the top to the bottom of the playing area. When the Tetris pieces form a solid row of blocks across the playing area, that row vanishes.

Because this is the only way to remove blocks, you should try to form solid rows whenever possible. The game ends when the pieces stack up to the top of the playing area.

You can manipulate a piece only when it is falling. Falling pieces may be rotated, moved horizontally, or dropped to the bottom of the playing area.

## 2. Playing the Game

The object of Tetris is to continue playing for as long as possible. The game is over when the playing area is stacked to the top with Tetris pieces. The following section explains how to play the game.

### 1. To Choose a Skill Level:

From the Skill menu, choose a starting level from 1 to 10. The higher the level, the faster the pieces fall.

### 2. To Start a New Game:

From the Game menu, choose New, or press F2.

### 3. To Move a Piece Horizontally:

Use the appropriate keyboard controls. You can move the current piece either left or right.

Note: If the current piece is close to the borders or close to already-positioned pieces, you may be unable to move it.

### 4. To Rotate a Piece:

Use the appropriate keyboard controls. You can rotate the current piece 90 degrees counterclockwise.

Note: If the current piece is close to the borders or close to already-positioned pieces, you may be unable to rotate it.

### 5. To Drop a Piece:

Use the appropriate keyboard controls. When you drop a piece, it falls rapidly until it lands on a stationary piece or the bottom of the playing area.

### 6. To Pause a Game:

From the Game menu, choose Pause, or press F3.

Note: To resume the game, choose Pause again, or press F3.

### 3. Rules of the Game

#### Tetris Rules:

Tetris pieces appear one at a time at the top of the playing area and then proceed to fall at a constant speed.

Each piece continues to fall until it lands on another piece or the bottom of the playing area.

You can manipulate a piece only when it is falling.

With the keyboard, you can rotate a falling piece and move it left, right, or down.

Each time there is a solid row of blocks across the playing area, that row vanishes. Try to manipulate the pieces as they fall so that solid rows form and disappear.

The game ends when the pieces are stacked to the top of the playing area. In a two-player game, the loser is the person whose game ends first.

### 4. Keyboard

#### Key

#### Action

---

#### One Player or Right Player in a Two-Player Game

UP ARROW or Num Pad 5	Rotates the current piece
LEFT ARROW	Moves the current piece left
RIGHT ARROW	Moves the current piece right
DOWN ARROW or INS	Drops the current piece to the bottom

#### Left Player in a Two-Player Game

K	Rotates the current piece
J	Moves the current piece left
L	Moves the current piece right
SPACEBAR	Drops the current piece to the bottom

#### General Keys

ESC	Minimizes the Tetris window to an icon
F1	Opens the Help Index
F2	Starts a new game
F3	Pauses or resumes the game

## 5. Game Menu Commands

**New** Starts a new game of Tetris. You can start a new game at any time, even in the middle of a game.

**Pause** Pauses the current game.

**High Scores** Displays the table of Tetris Experts.

**Exit** Exits Tetris. You can exit at any time, even in the middle of a game.

## 6. Strategy and Hints

This section contains helpful hints for playing Tetris successfully.

Use the Piece Preview command from the Options menu to gain experience, and then turn it off for higher scoring.

Avoid building "mountains." Try to keep the pile of pieces level at the top.

Avoid creating "canyons" that are one block wide and many blocks deep. You may find yourself nervously waiting for the long, skinny piece (which never seems to appear when you need it).

Always try to leave a "flat spot" at least three blocks wide along the top of the stacked pieces. This way you can drop most of the pieces without leaving any gaps.

Sometimes it is to your advantage to leave a gap and go on to the next level. If you can make the next level disappear, you may have time to fill the gap afterwards.

Once a piece lands on another piece, it can still be manipulated for a very short time. You can use this time to "slide" the piece under an "overhang."

## 7. Scoring

The current piece starts with an initial score value, which increases for each successive playing level. Each time you rotate the piece or move it horizontally, its score value decreases. If you drop the piece, its score value increases proportionally to the distance it falls. Therefore, you can achieve the highest score per piece by immediately dropping the piece from the top of the playing area. The lowest score per piece will result when you continually manipulate the piece until it lands on another piece or the bottom of the playing area.

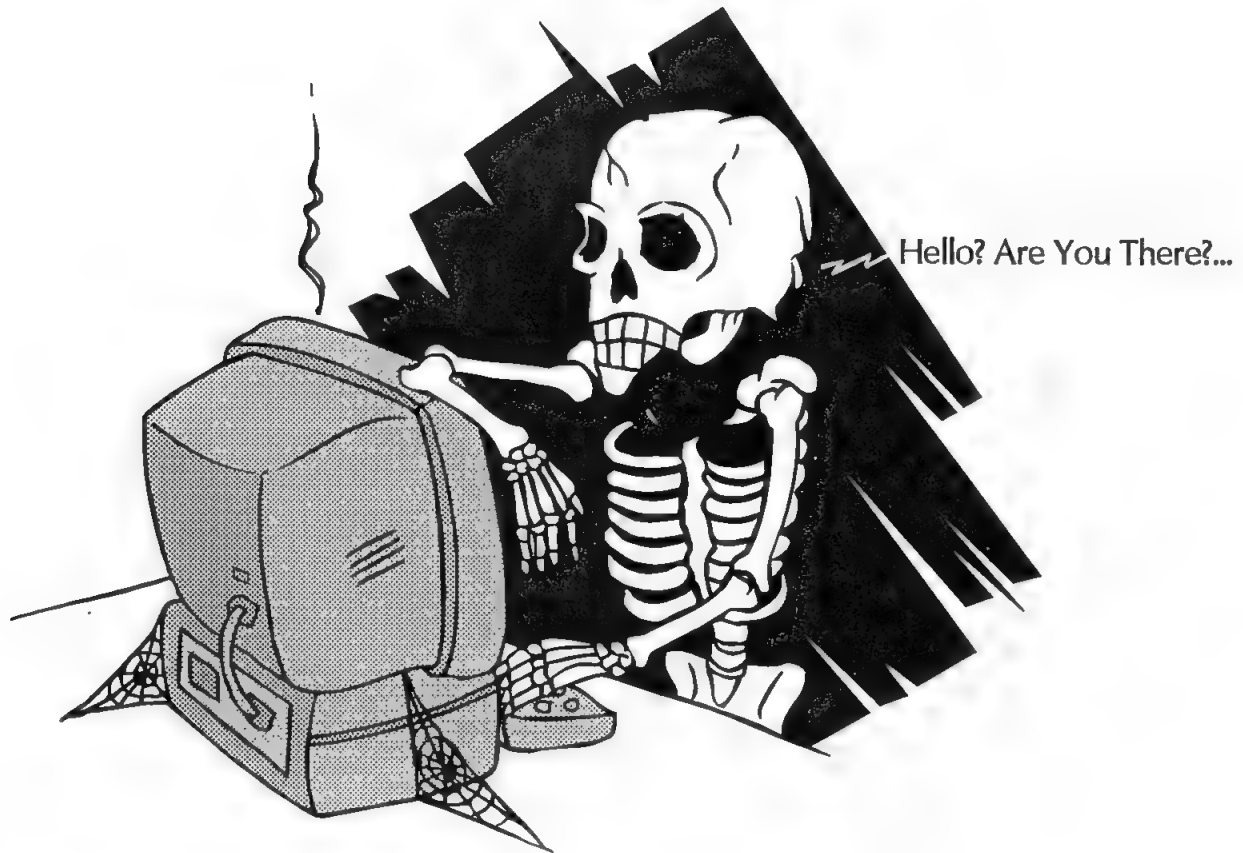
Note: Using the Piece Preview command from the Options menu dramatically lowers the score value of every piece. It is a helpful learning tool, but once you have gained experience, you should turn this command off.

You can earn bonus points by removing multiple rows of blocks simultaneously.

One Row	100 points
Two Rows	200 points
Three Rows	400 points
Four Rows	800 points

# When the Computer "Freezes"...

Some times the computer just "freezes."  
This happens because the program in the computer's  
memory gets scrambled.



All you can do is reset the computer.  
Try holding down Ctrl, Alt, and Delete at the same time.

You will lose the contents of memory. So save to disk often!



## COMMANDS

To format a high density disk in a high density drive:

FORMAT A:

To format a double density disk in a high density drive:

FORMAT A:/F:360.

To change drives:

Type the drive letter followed by a colon:

A:

B:

C:

To change directories:

CD\<DIR NAME>.

Display your directory tree:

TREE

To see the configuration of your machine:

MSD

To list the files in a directory:

DIR

To list the files in a directory a page at a time:

DIR/P

## DIRECTORY

A partition of data files on a magnetic disk into a hierarchical structure. Think of a directory as an inverted tree, with files at one level contained within the directory at the next level up. In order to access a file at any level, you must give DOS the names of all the directories directly above it, or the pathname. The topmost directory is called the root directory, and each directory below that is called a subdirectory (although often called just a directory).

To change a directory:

CD\<DIR NAME>.

To change the directory to the root directory:

CD\.

## ***Appendices***

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### **Appendix A - Copyright and Trademarks**

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